Softron Media Services

OnTheAir Node

User Manual

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Welcome to OnTheAir Node

I

Remarks

In this manual, pop-up menus will be indicated as: File > Save As. The word “File” before the sign “>” indicates the menu from the menu bar. The information after the “>” sign is a command that you can choose within the menu.

You can visit our web site www.softron.tv for information about updates as well as to contact us for support.

In the first part of this manual, we will briefly introduce you to OnTheAir Node. You will learn about the different video formats supported, the different configurations and how to install and launch the software.

About OnTheAir Node

1

1.1 Some quick facts

What is OnTheAir Node ?
OnTheAir Node is the next generation playout/ingest engine from Softron. It has been designed to fulfill a need in the broadcasting industry for an inexpensive, reliable and customizable video server based on off-the-shelf technology. The concept was to make OnTheAir Node completely faceless (apart from the System Preferences pane) and completely open to third-party applications along with Softron's own applications as well. It is controlled through Telnet, a very open, standards-based protocol used in many broadcasting equipment. This means the node can be controlled from any application on any platform to provide seamless playout and ingest functions.

Reliability
OnTheAir Node has been designed to launch automatically at startup and to resume operation, even after a crash or power loss. A log of everything that is played is maintained and available for the user. It is not necessary to have a display monitor connected to the Node server which makes it ideal for using on headless servers like the Xserve.
It has been tested with a media catalog of more than 500,000 video clips.

Media Cataloging
One of the challenges of having client/server setups is to make sure the client knows exactly what media are available on the server at any time. This is achieved by providing synchronization information to the clients even if they are disconnected for long periods of time. Information on the clips is provided as XML, making it easy for any application to retrieve the clip's characteristics like video codec, audio sample rate, creation date, last modification date, finder label etc... It also automatically validates the clips to make sure they are compatible for playback. If not, a detailed description of the problem is available to the client applications. The Node will also automatically retrieve a file even if it has been moved or copied. If the original becomes unavailable, a copy will be used instead and this is completely transparent to the user.

Clip Attributes
Another revolutionary feature of the node is that it publishes available clip attributes, so that every client application knows exactly what plugins are available on the node and what their possible values are. An example is the GPICommander plugin (the first plug-in to be released with the Node) which advertises all its inputs and outputs along with their state.
When the node is playing a clip and its attributes are different than the current value, the plug-in will automatically be called to adapt its state. So for instance, if a clip is marked with an attribute of "GPICommander Output 1 On" and the current value is off, then the appropriate output will be turned on automatically when the clip begins. That makes it very easy to assign attributes to clips and does not require to use manual actions anymore. Another available attribute is the logo overlay. The clients know exactly what logo overlay files are available on the node and can select which one to apply on each clip.

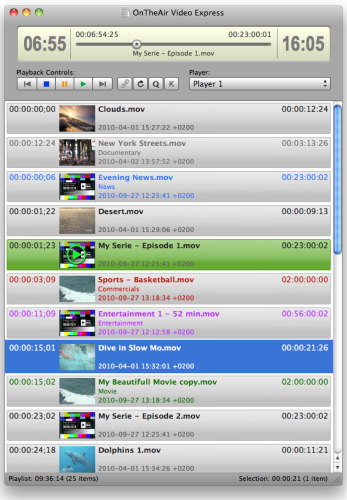
Playout
OnTheAir Node uses, under the hood, our well-knows playback engine that provides seamless, reliable SD and HD playout functions while adding features like multi-lingual audio support, station logo overlay and last but not least, alpha support for ARGB playback (playing a movie with its key on a separate output).

Each host computer will originally support four nodes to allow for multi-channel playout.

1.2 About OnTheAir Video - DV - Express

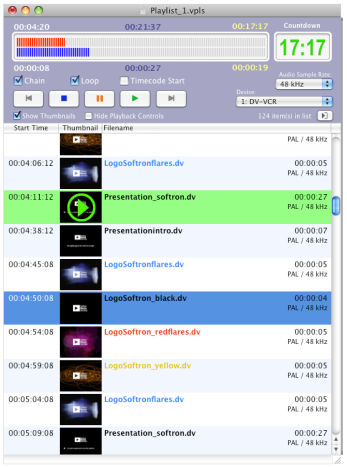
This manual concerns OnTheAir Node. OnTheAir Node is a client-server playout application.

There are also some standalone playout solutions available. OnTheAir Video, OnTheAir Video DV and OnTheAir Video Express, each with a speciality. Here is a quick description of each of them so you can make your choice. But to have an extensive view of the differences between each version, you should refer to the following page of the Softron website: http://www.softron.tv/products/playout_standalone/compare.html



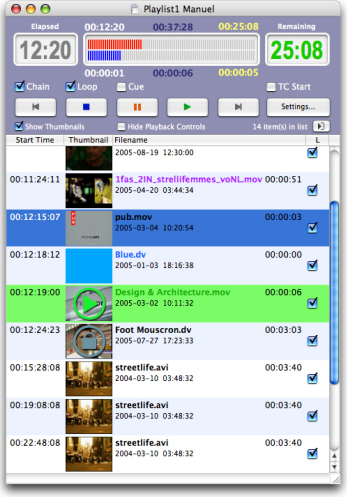
OnTheAir Video Express

OnTheAir Video Express is the “entry-level” playout application. Its strength relies in that it can output any file QuickTime can read to any available Video output. If you can open a file with QuickTime, you can output it with OnTheAir Video Express. It can also read ARGB files. This means that from After Effects or Motion project, you can export a file in Animation codec or Apple ProRes 4444 and overlay that file on top of an incoming signal, making it a really efficient Character Generator with tools you know. As QuickTime is used to output the video (and not our own engine as with OnTheAir Video), OnTheAir Video Express is not a playout application recommended for 24/7, it is rather intended at Live shows or productions. It also doesn’t have some options like the Scheduling or Logo overlay option.



OnTheAir Video DV

The FireWire Version of OnTheAir Video called OnTheAir Video DV works (only) with any FireWire Converter. With the multichannel video option, you can output up to 4 video signal from one computer (with additional FireWire card and the appropriate number for FireWire converter). The strength of OnTheAir Video DV is that it is very light to run and can run from a laptop, Mac mini, with very few memory. It has the Scheduling option making it possible to use for 24/7 broadcast operations. Compared to OnTheAir Video, it doesn’t have however the Logo, HD, or multi language options. It only plays dv stream files.



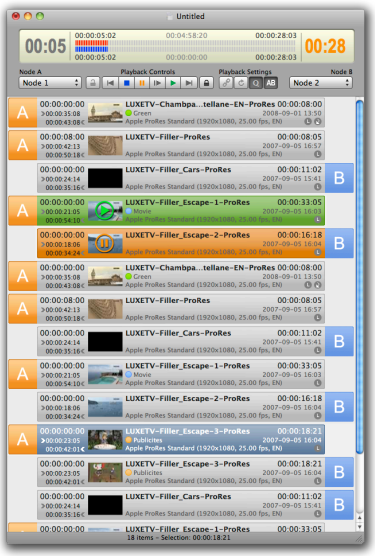
OnTheAir Video

The PCI version of OnTheAir Video uses our own playout engine that has been developed and improved since it was first used in 2004. It has proven very high reliability and therefore is the ideal companion for broadcast 24/7 or live shows. OnTheAir Video can playout most QuickTime codecs (provided they are i-frame) and has some advanced features (some are optional) such as Logo overlay, multilingual, Actions (to trigger external devices such as GPI or Character generators, etc...), Scheduling, ... For Live shows OnTheAir Video also has the Cue mode which will make it a very easy to use video player to start Video subjects.

1.3 OnTheAir Live or OnTheAir Manager

OnTheAir Live and OnTheAir Manager are 2 Mac OS X client applications that can control OnTheAir Node.Each have their specifities, and in short OnTheAir Live is for Live production and OnTheAir Manager is for 24/7 scheduling of OnTheAir Node.

OnTheAir Live



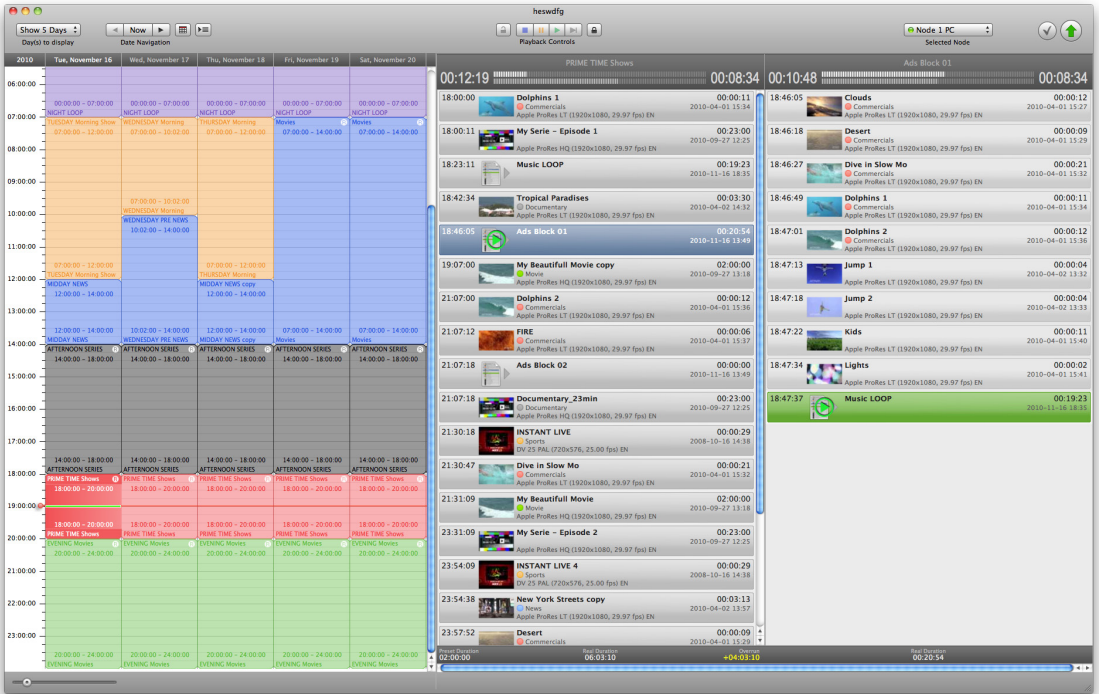
OnTheAir Live is bundled free with OnTheAir Node. You can then install it on any number of client workstation. One OnTheAir Live can control multiple OnTheAir Node.

OnTheAir Live is typically to be used in Live production to start news subjects with Cue mode, A/B Roll, multiple playlist creations, etc... The great advantages compared to OnTheAir Video is that multiple clients can see what is playing, so you can have your producer, and journalists seeing what is the clip that is currently playing without being able to control the playout, and have only the operator controlling the playout. The A/B Roll is also a unique feature in OnTheAir Live, where you can have the next 2 subjects ready to play.

OnTheAir Manager

OnTheAir Manager is another client application for OnTheAir Node. This one is not free. This the application that enables you to schedule your playout for 24/7. It has a calendar style user interface, and have some great new features like hierarchical playlists, clip categories, inherited attributes, repeated events, Live clips, etc...

One OnTheAir Manager can take control of multiple OnTheAir Node.



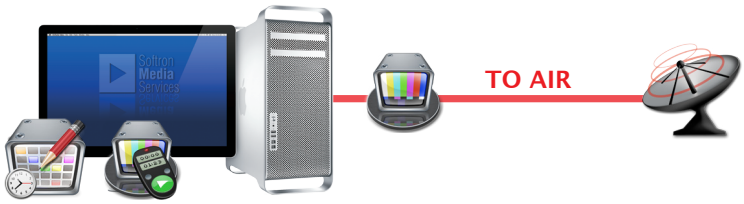
1.4 Different possible setups

OnTheAir Video (DV and Express also) is a playout application that needs to be controlled from the computer where the application is running. However some usage may require to control the playout from a different computer. For example, if you install the playout computer in a Machine Room and want to control the playout from the Control Room. With OnTheAir Video this is only possible using a Screen Sharing application, or some Apple Scripts. This can work very nicely for some users, but is not always the ideal solution (may be a little slow, etc...)

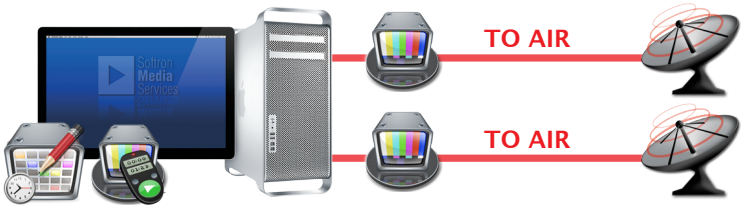
That is why Softron has developed a version of OnTheAir Video that is based on the client-server architecture and it is called OnTheAir Node. OnTheAir Node uses the same reliable engine as OnTheAir Video, but brings the power of a client-server architecture.

With OnTheAir Video or OnTheAir Video DV or OnTheAir Video Express :
One client controls one or 2 output but only local: you need to be on the computer to control it.

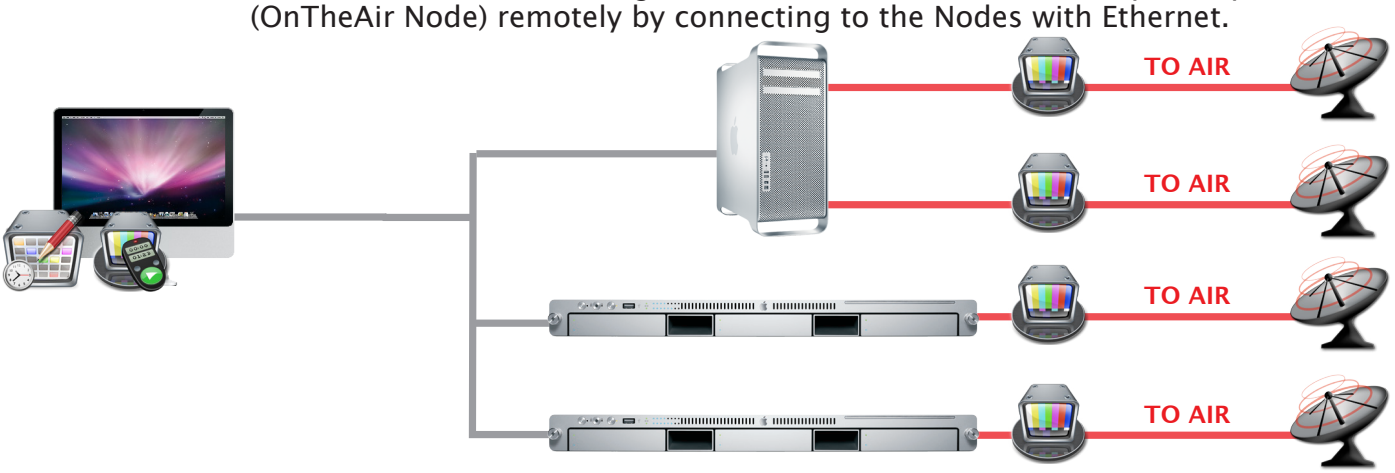
With OnTheAir Node + OnTheAir Manager (or OnTheAir Live) :
One client (OnTheAir Manager or OnTheAir Live) control one output (OnTheAir Node) on the same computer.



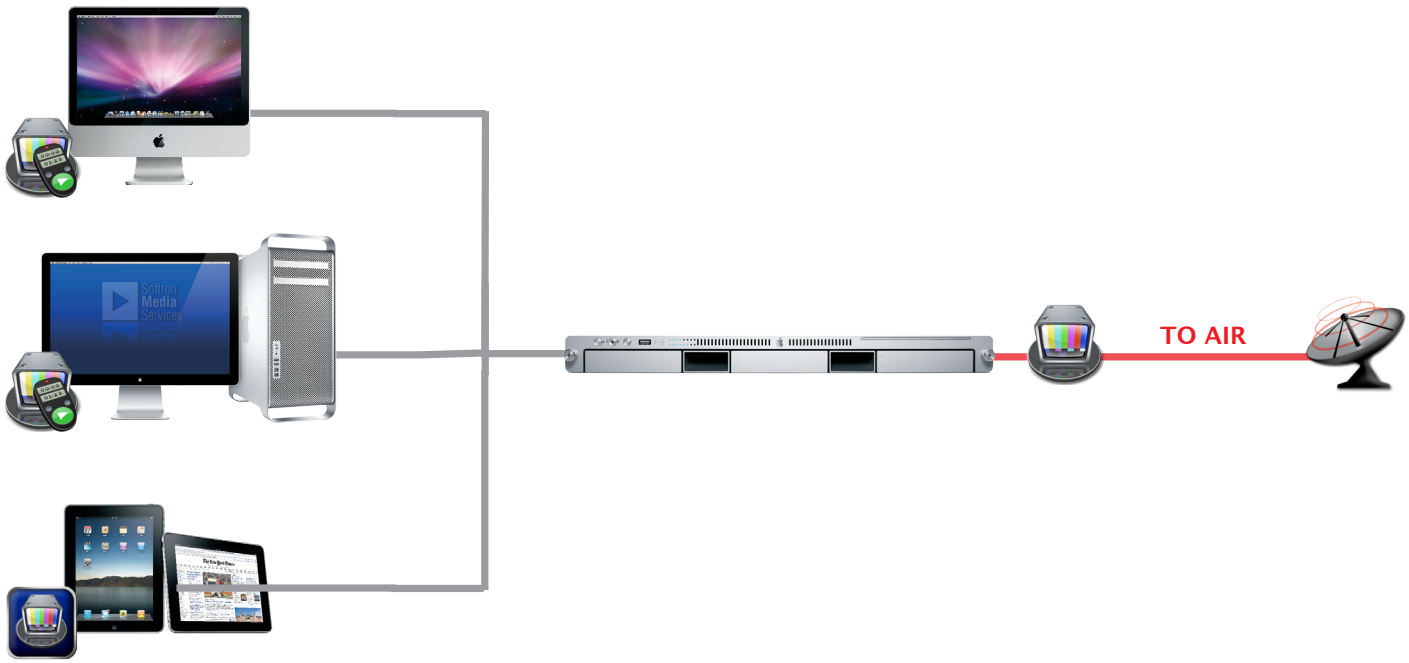
One client (OnTheAir Manager or OnTheAir Live) control 2 output (OnTheAir Node) on the same computer.



One client (OnTheAir Manager or OnTheAir Live) control multiple output (OnTheAir Node) remotely by connecting to the Nodes with Ethernet.



One or multiple output (OnTheAir Node) can be controlled by multiple clients (only OnTheAir Live - for OnTheAir Manager you will need OnTheAir Server)



Hardware System Requirements 2

2.1 Computer Requirements

OnTheAir Node requires :

- any Intel Computer.
- Minimum *4 GB RAM for SD playback and 6GB for HD*.
- Mac OS X version 10.5.8 or later
- QuickTime 7.6 or later
- one or more video output (AJA, Blackmagic Design, Matrox) – This is not possible to output with the DVI/Mini DisplayPort output.

2.2 Video /Audio output

OnTheAir Node requires at least one Video Card to output video and audio signals. Brands such as AJA, Blackmagic Design or Matrox are supported. To know which cards are supported at the time of reading, have a look at the Softron website on the OnTheAir Node Specifications page.

Some cards support to have more than one card installed in one Mac (as AJA since drivers 7.5, and Decklink since drivers 5.8). This enables you to have multiple output from one Mac. However, be aware that doing multiple Video output can be very demanding in terms of CPU, Memory and Storage read rate. Always test your configuration with a DEMO version so you are sure it will sustain the data rate, and contact us to have advises.

Most drivers will be supported and it should not be an issue to upgrade drivers of your video card. However it happens from time to time that some issues appear when upgrading drivers. So always do a test on another computer first and stay tuned with our News page: www.softron.tv/news.html to be informed about possible issues. If you encounter any problem, contact us using the Support Contact page from the website.

2.3 Storage

You can use any volume that will mount on your Mac to read the video with OnTheAir Node. But of course you need to check that the data rate is sustained considering the codec and file format you are using.

You can use OnTheAir Node with the internal disks of your Mac. But if you are working with a large number of files or are working with High Definition files, we recommend you work with Fibre Channel storage from a third party supplier. Consult one of our reseller to know what is the best configuration for your workflow.

▶ 2.4 Supported Codecs - File format

OnTheAir Node supports most QuickTime codecs. The files must however correspond to the following:

- only self-contained movies (no Reference movie supported)
- it must have at least one Video Track in a thread safe codec.
- only i-frame codecs (no time compressed codecs supported such as MPEG-2 or HDV)
- it must have at least one Stereo audio track in Linear PCM, 16-24 bit, 48Khz
- only Stereo Tracks supported (for 5.1 audio, you should use multiple stereo tracks)
- only thread-safe tracks (no text track, nor Closed Captioning Track supported)

When you export from final cut Pro and enable to Export Chapter Markers DVD Studio Pro Marker or any Marker, it will create a Text track in the QuickTime file. This Text track is not supported by OnTheAir Node. To delete a Text track from a QuickTime file, you need QuickTime 7 Pro, and then select Window > Show Movie Properties, then select the Track, delete it and save the file. IT will then be accepted by OnTheAir Node.

Any file that is not in the list of supported codecs, or that does not meet any of the condition above will be shown in the media browser as invalid. You will not be able to use it in OnTheAir Live nor OnTheAir Manager. Be aware however that if the appropriate codec is not installed, OnTheAir Node will not be able to play the file even if it is being shown as valid and online.

A few codecs are installed with the system when QuickTime is installed. However, some codecs may need to be installed afterwards. This is the case with IMX, DVCPro HD or Apple ProRes for example. To check which codec is installed, make sure they are located in the following folder: /Library/QuickTime/ As a matter of fact if you succeed to read the file with QuickTime, it means that the appropriate Library is installed. If you don't succeed to read the file with QuickTime, there is no way OnTheAir Video will be able to read it.

Some codecs are also installed when you install Final Cut Pro or can be purchased from third party developers such as MXF4Mac or Calibrated.

To have the list of supported codecs for OnTheAir Node, check on this webpage: http://www.softron.tv/products/playout_clientserver/compare.html

Here is non exhaustive list of supported codecs:

- Apple ProRes Family
- DV STREAM (.dv files)
- DV (.mov)
- DVCPRO-25
- DVCPRO-50
- DVCPRO HD
- MPEG-4 (I-frame only)
- M-JPEG
- MPEG-IMX (30-40-50)
- Uncompressed HD

Many other QuickTime formats may be supported by OnTheAir Node. The above are the most often used and are the ones that have been thoroughly tested and certified. If you want to use a format other than the ones specified, we suggest that you check our web site for informational updates - or you can, of course, test it by yourself and let us know.

Do not hesitate to test different formats and to keep us informed about your test results. We look forward to receiving you comments at http://www.softron.tv/support/contact.php

▶ 2.5 About Audio Formats

As stated above, OnTheAir Video can accept only Video files that have appropriate Audio format. The audio format supported is:

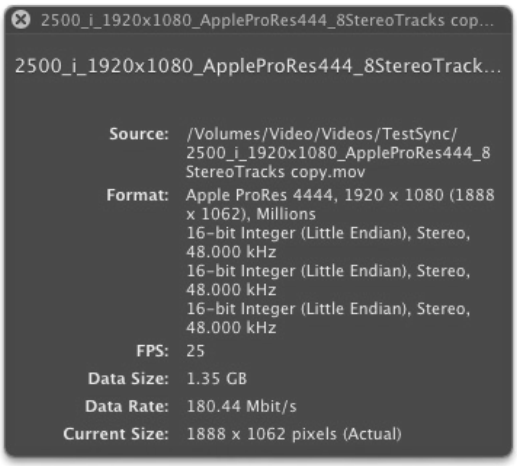
- Linear PCM
- 16 or 24 bit
- 48Khz
- only stereo or mono tracks

What we mean about Stereo tracks is that some QuickTime files can have one audio track with multiple audio channels. This is typically the case with 5.1 audio where you will have one audio track with 6 audio channels. This kind of audio track is not supported by OnTheAir Video.

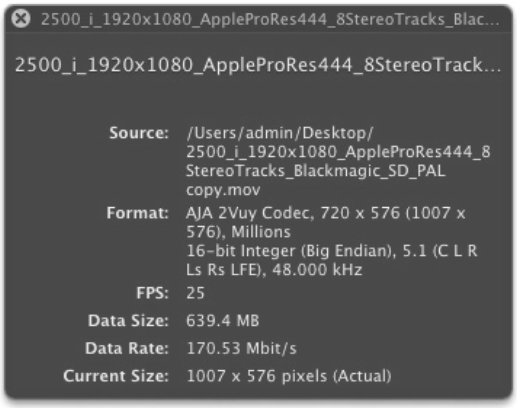
However it is possible to output 6 audio channels for 5.1. For that you can simply add 3 Stereo Tracks to the QuickTime file instead of one track with 6 channels. This type of files will be supported and played out by OnTheAir Video provided you have the multi-audio option.

Below are screenshots of QuickTime Movie Inspector info window. The screenshot from the left is one of a QuickTime file with supported audio tracks (3 Stereo Tracks). and the one from the left is a screenshot of Movie Inspector of a file with unsupported audio tracks (1 track in 5.1)

Supported Quicktime File
(3 stereo Tracks)


2500_i_1920x1080_AppleProRes444_8StereoTracks cop...
2500_i_1920x1080_AppleProRes444_8StereoTrack...
Source: /Volumes/Video/Videos/TestSync/2500_i_1920x1080_AppleProRes444_8StereoTracks copy.mov
Format: Apple ProRes 4444, 1920 x 1080 (1888 x 1062), Millions
16-bit Integer (Little Endian), Stereo, 48.000 kHz
16-bit Integer (Little Endian), Stereo, 48.000 kHz
16-bit Integer (Little Endian), Stereo, 48.000 kHz
FPS: 25
Data Size: 1.35 GB
Data Rate: 180.44 Mbit/s
Current Size: 1888 x 1062 pixels (Actual)

Unsupported Quicktime File
(one 5.1 Track)


2500_i_1920x1080_AppleProRes444_8StereoTracks_Blac...
2500_i_1920x1080_AppleProRes444_8StereoTrack...
Source: /Users/admin/Desktop/2500_i_1920x1080_AppleProRes444_8StereoTracks_Blackmagic_SD_PAL copy.mov
Format: AJA 2Vuy Codec, 720 x 576 (1007 x 576), Millions
16-bit Integer (Big Endian), 5.1 (C L R Ls Rs LFE), 48.000 kHz
FPS: 25
Data Size: 639.4 MB
Data Rate: 170.53 Mbit/s
Current Size: 1007 x 576 pixels (Actual)

▶ 2.6 About File Wrappers (QuickTime, AVI, MXF)

OnTheAir Node supports .mov QuickTime wrappers and .avi without the need of additional software or plug-in (except for the required QuickTime codec).

OnTheAir Node supports MXF files provided you have installed the appropriate QuickTime component. You can purchase such component to read directly MXF files from MXF4Mac or Calibrated. Be aware the same constrains apply to the MXF files as with .mov files (only i-frame codecs,... see Chapter 2.4)

▶ 2.7 About VANC

Some additional information can be encoded in the video lines called VANC. This information can be for example Closed Captioning in the USA or Teletext in Europe. OnTheAir Node will not write anything to these lines, but it will be transparent: if there are VANC lines in the Video signal, OntheAir Video will send them to the Video Card which in turn may handle them or not. Before deciding for one card or the other, check with the manufacturer if VANC lines are supported and how to setup the card.

▶ 2.8 Closed Captioning

Closed Captioning is widely used in many countries among which USA. The Captioning information is encoded on to special lines in the Video Signal.

OnTheAir Node doesn't support the closed Captioning track of a QuickTime file and doesn't encode the Captioning signal directly on the video signal.

However, if a Captioning signal is present in some of the Video lines of the file, OnTheAir Node will play them out. It will also depend on the video card that you are using, as some video card may not play the video lines with the Captioning info on it.

It is also possible to add Captioning signal on your video output using two things:

- a dedicated software to encode Captioning information to an audio track that you can then use in your editing software such as Final Cut Pro
- a video card that will decode the audio track and encode the Captioning to the video signal when playing the clip so it can be read by all TV monitors.
- you will also need the multi-audio output option of OnTheAir Node so you can output more than one Stereo track .

With that method, you will understand that the Captioning information is added only at the end of the process.

One of the software that encode Captioning information to Audio is called MacCaption. (http://www.cpcweb.com). MacCaption can import existing caption files (or create new captions from scratch), and exports a true 708 caption track to ensure the video is compliant with all FCC regulations (supports all EIA-708 features).

Check on the CPC website to see which products are compatible, but at the time of writing, here is a list of some of the video card that will decode the Audio Track:

- Matrox MXO2

Please note that HDMI and component connections do NOT carry closed captioning data. More information on HDTV Closed Captioning here:
http://www.cpcweb.com/hdtv/

- OnTheAir Node doesn't support QuickTime files with a Closed Captioning track as it is not supported by OnTheAir Node. The only way to have Closed Captioning is to use the Audio encoding option available with the Matrox cards and CPC software.

2.9 Teletext with OnTheAir Node

Teletext is in use in many european countries to add Text informations to the video signal. Some video lines in the video signal are used for the Teletex information. At the time of writing, there is no known solution to encode these lines directly on the Mac. The only solution is then to add these lines on top of the video signal going out of OnTheAir Node and maybe to control this Teletext encoder using GPI Commander to start/stop encoding.

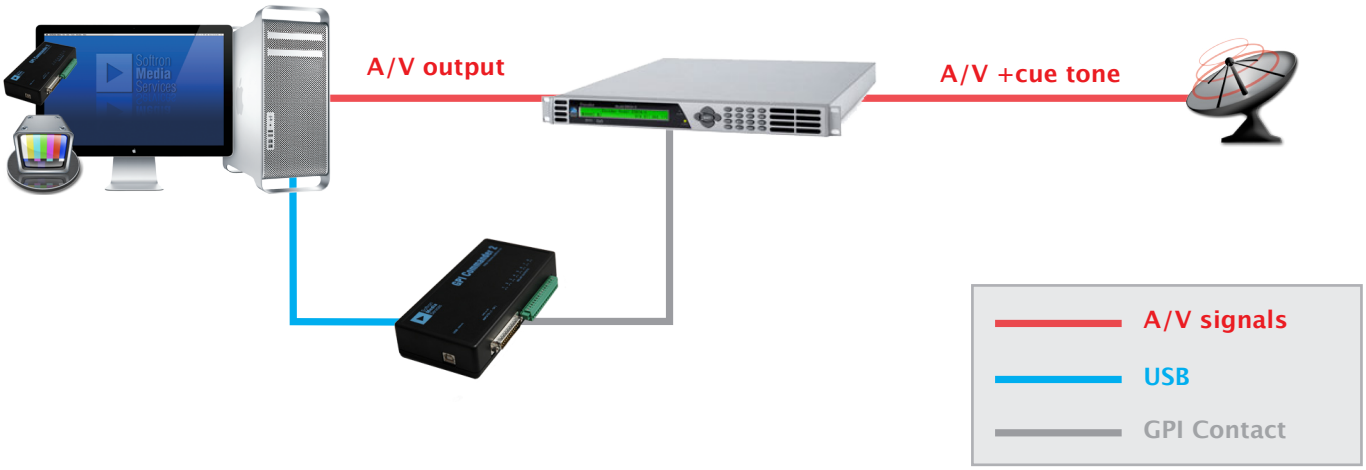
2.10 16:9 and 4:3 signals

A video signal can be in a 16:9 or 4:3 aspect ratio. A flag can be added to some of the VANC lines of the video signal to tell the TV monitors wether the signal is in 4:3 or 16:9. OnTheAir Node will not add such information on the signal, but you can control a external device using GPI Commander to add or not this information in the VANC lines.

2.11 Generating Cue Tone

In broadcast networks, a DTMF cue tone or subaudible tone is often used to prompt insertion of a local TV commercial or radio advertisement by the broadcast automation equipment at the broadcast station or cable headend.

OnTheAir Node can not generate Cue Tone in the Audio signal. However, you can control a Cue Tone Generator from OnTheAir Node. You will simply change the attributes of the required clips so that it will trigger a GPI output (using GPI Commander). This GPI output will then control to a cue tone generator.


A/V output
A/V +cue tone
A/V signals
USB
GPI Contact

Installing & Setting up OnTheAir Node

II

In this second part, we will explain how you should set up your video card's preferences as well as how to set up the OnTheAir Node preferences.

Please read this section carefully. Not only will it provide valuable information on how to set up your hardware and software correctly, but also because much of the information provided will be helpful in your every day use of OnTheAir Node.

Installing and licensing OnTheAir Node

3

3.1 Installing OnTheAir Node

To install OnTheAir Node :

- Download it from our website's "Downloads" area,
- Double-click on the OnTheAir_Node_Installer.zip file to uncompress it.
- Double-click on the file "OnTheAir Node Installer".
- You will then be guided through the installation process.

Once the installation process is finished, go to "System Preferences > OnTheAir Node to set it up.

3.2 Using OnTheAir Node in DEMO mode

OnTheAir Node can be used in DEMO mode as long as you wish. The DEMO mode has 2 limitations:

- a DEMO is watermarked on the output
- the cataloging of the Media folder(s) is limited to 100 files (so you will not see more then 100 files in the Media Browser

Once you've tested OnTheAir Node thoroughly and want to buy it, just contact your nearest reseller or go the Softron online store. You will receive a Serial number or a dongle (option).

3.3 Licensing OnTheAir Node

All Softron applications can be licensed using Serial Numbers (by default) or Dongles (optional). By default you will receive a Serial Number. They have the advantage that they can be sent quickly (you will receive them by e-mail) and can't be lost. But you will need to activate the serial number on the computer you want to install it on, and deactivate it if you want to move it to another computer. This requires an internet access.

For more informations on the Software Licensing, download the "Application Licensing Explained" document available from the Document download page of the website:
http://www.softron.tv/support/download_docs.html

When you receive the license, it will "unlock" your current DEMO version so you are sure to be using the exact same version that you have tested. There is absolutely no difference between a DEMO version and a licensed version except the DEMO watermark, the fact that the media cataloging will not be limited and eventually some options that may not be activated if you didn't purchase them. The DEMO version has all options active, but the licensed version will only have the purchase option active. The available options for OnTheAir Node are:

- Logo overlay
- HD

Note that compared to OnTheAir Video, the multilingual option is activated by default. Also, there is no schedule option as it achieved by OnTheAir Manager.

- You can only activate/deactivate a Node when it is NOT running.
- There is no user interface to OnTheAir Node, all is done using a System Preferences Pane.

Setting up OnTheAir Node 4

4.1 About Video Card Settings

We will not go through all the video cards settings as this is not the purpose of this manual and it can change with different driver versions and manufacturer. It will also mainly be OnTheAir Node that will drive the card settings. There is just one setting that needs to be taken care of, it's the option that enables to play only one of the frame when video is paused to avoid flickering. You need to deactivate that option otherwise the signal will be jittery (it will look like a field inversion). This option is named differently with the different cards :

- Blackmagic Design: in Blackmagic System preferences, select the "Settings" tab and uncheck the "Remove field jitter when video is paused" option
- AJA: in AJA Control Panel, select the "Codec Options" tab and in Video out, choose "Full Frame"
- Matrox: in Matrox System Preferences, select the "Video Output" tab and in "Miscellaneous", Choose "Scrub and pause": Both fields.

4.2 Finding OnTheAir Node Application

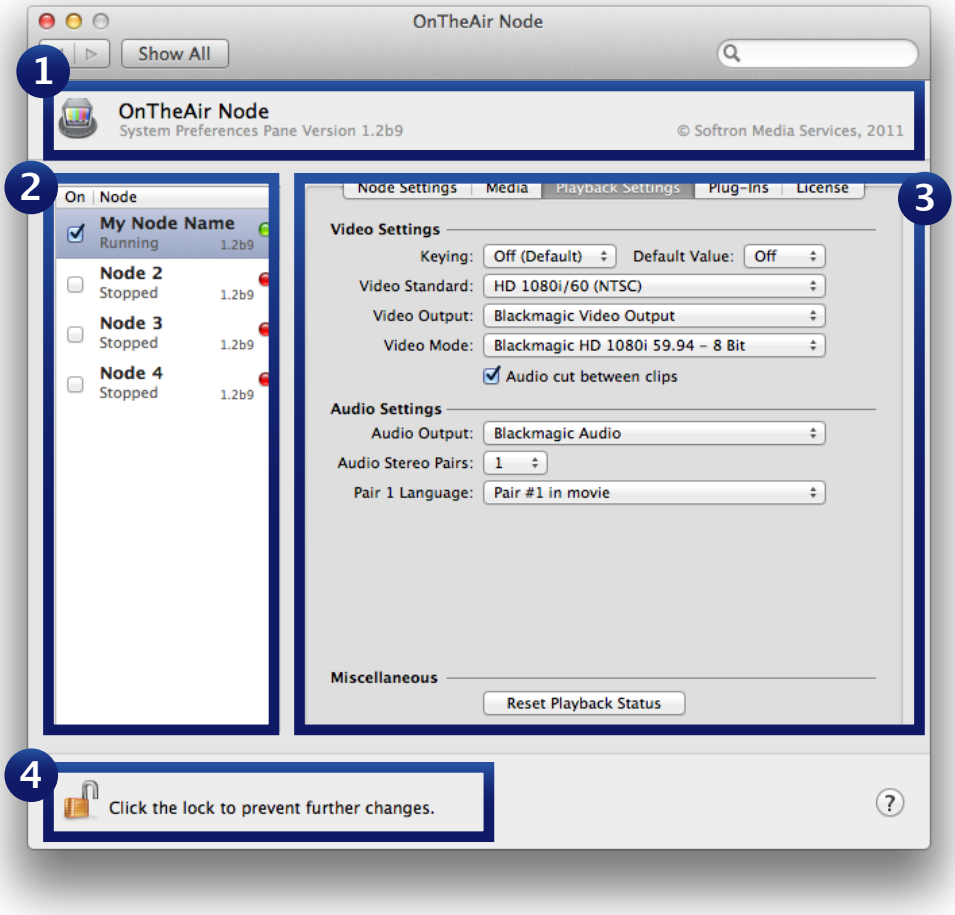
OnTheAir Node has no user interface, and you will not find any Application in your Applications folder. In System Preferences, you will be only able to set up its preferences and start it.

To control OnTheAir Node (and have a user interface) you have a few options :

- with OnTheAir Live (with or without OnTheAir Server)
- with OnTheAir Manager (with or without OnTheAir Server)
- with an iPod, iPad client
- with a third party software
- with Terminal in Telnet
- ...

▶ 4.3 OnTheAir Node System Preferences Pane Overview

When you first start up the OnTheAir Node System Preference Pane, it should look like below. You can notice that one OnTheAir Node System preference pane can control multiple Nodes, and that you will need an admin password to make any modification to it.



1 OnTheAir Node Info
Version and copyright

2 Nodes List
Check the status and version of each Node (stopped or started), checkbox to start/stop each Node

3 Node setup
5 tabs to change the settings of the select Node

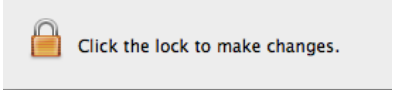
4 Lock/Unlock
Preference pane lock/unlock in order to make modifications

- If the System Preference Pane doesn't start, check the Troubleshooting section at the end of this manual to find some possible solutions.

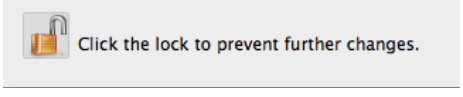
▶ 4.4 Lock/Unlock OnTheAir Node System Preferences Pane

Before doing any change to the OnTheAir Node System preference pane, you will need to unlock it. To unlock it, simply click on the lock located at the bottom left of the Preference Pane. To lock it back simply click again on the lock.

Preference Pane Locked



Preference Pane Unlocked

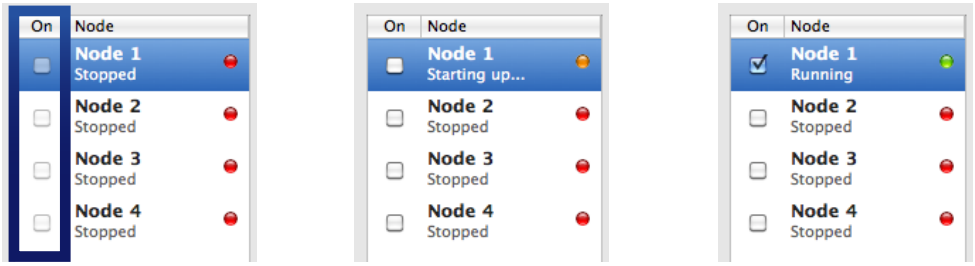


▶ 4.5 Start / Stop a Node

- When a Node is started, you can not modify its Name, port number, nor activate or deactivate a Serial Number. If you intend to do any of these, please refer to the chapter that explains how to do that in Node Settings and License tab.

All settings other then Node name, port number and License tab can only be modified when a Node is running.

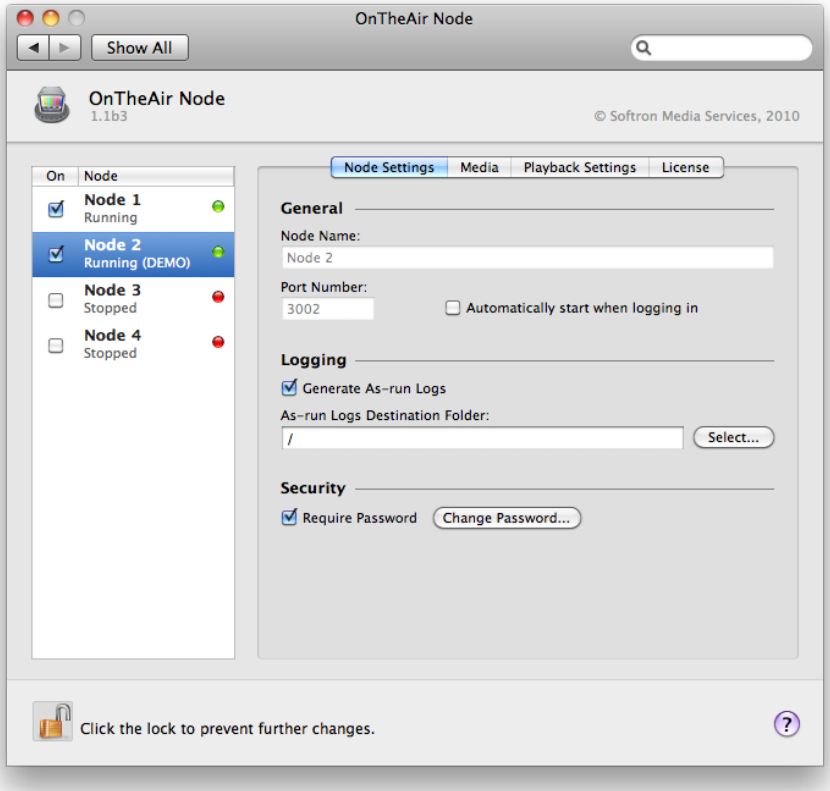
To start one Node, simply click on the appropriate checkbox in the “On” column of the Node List section (If you can’t click on it, or that it doesn’t have any effect, check that the System Preference Pane is Unlocked):



When a Node starts, the red LED turns orange and its status is “Starting Up...”
When a Node is running, the orange LED turns green and its status is “Running”

Once a Node is started (and that the OnTheAir Node System Preferences Pane is Unlocked), you will be able to change its settings.

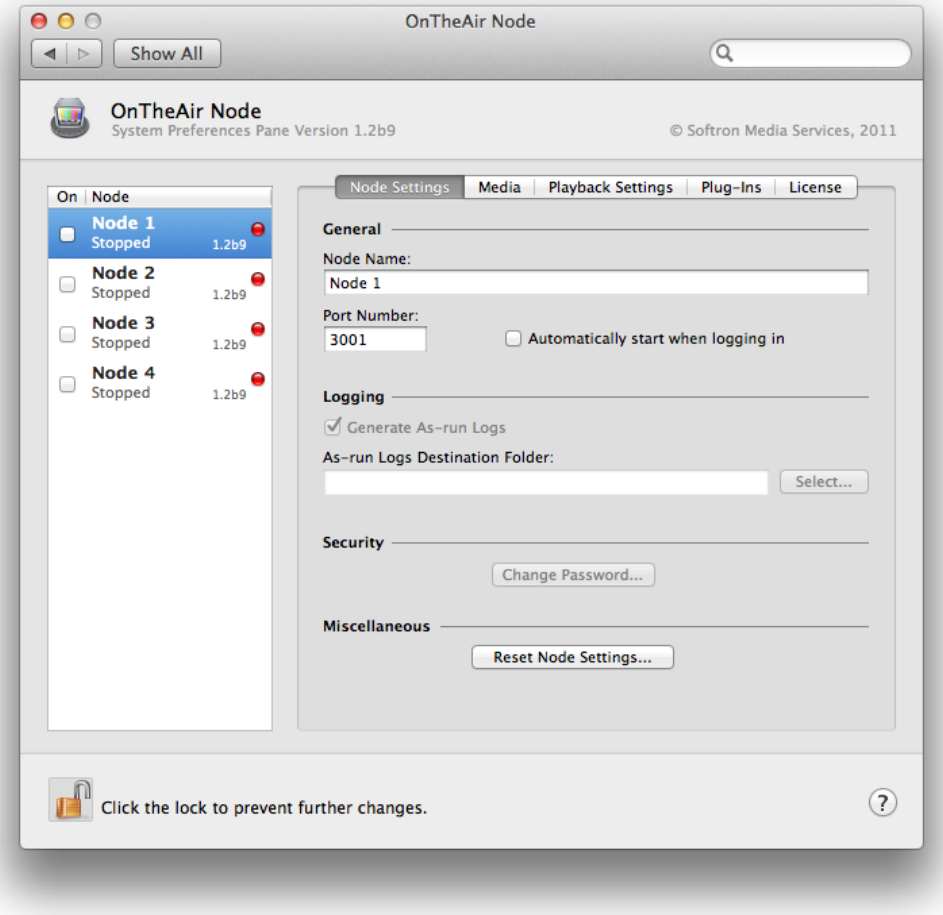
If a Node has a (DEMO) next to the status “Running”, it meand it runs in DEMO mode, and thus will overlay a DEMO watermark on the output and only show 100 items in its media folders.



- Do not start 2 Nodes at the same time. Wait that the first one has its status on “Running” before starting another Node.
- Do not stop a Node when it is enumerating or validating a media folder as it may result in incoherence in the Media Folder structure.

4.6 Node Settings

The first tab is called “Node Settings”.



Node Name / Port Number
Change the Node Name and Port Number here. OnTheAir Node must be stopped to be able to rename the Node and its port number. The port number is the port it will communicate on using Telnet.

- Do NOT change the port number if working with OnTheAir Live or OnTheAir Manager as the port Number is used in conjunction of the IP adress to control the Nodes with Telnet. Only change the port number if needed for third parties.
- The Node Name is the Bonjour Name of the Node. That is what clients will “see” instead of an IP adress.

Automatically start when logging in
When this option is checked this Node will

- start automatically when the computer is started. This is an option you want to enable if you are working with remote servers, so you don't have to start the Node when you restart the computer. Note that it will only start automatically if it was running when you restarted the computer.
- restart automatically after a crash. In case of an issue with OnTheAir Node and that it crashed, it will be automatically restarted if this option is enabled.

Generate « as-run » logs
You can select whether you want OnTheAir Node to generate "As-run logs". They are generated in the same folder as the Application. One different file is generated every day. These "As-run logs" are referencing all the clips played by OnTheAir Node. This can be used to report when their clips have been aired. "As-run log" reports indicate: the date, hour, the name of the playlist and the action (if the clip was played next to a clip or if it was launched manually or with a schedule action).

You can then also choose to log (in the as-run-log file) which logo is overlaid with each clip and the Actions that are triggered.

As-run Logs destination Folder
This is where you set where the logs must be stored. There are two different logs created:

- the logs created by the application recording everything happening when playing back. This is used mainly by us to track data and workflow, you will not need them for your everyday use. They are named as this: OTAN_LOG_2007-09-13.log
- the "as-run-logs" which record every time a clip was played. They are named as this: OnTheAir Node Log 2007-09-13.txt. You can choose if you want to generate As-run-logs or not in the Playback Preferences. You can use this as a report for your clients to know when their clips have been aired. What is referenced is: the date, the hour, the day of the week, the name of the playlist, the action (if the clip was played next to a clip or if it was launched manually or with a schedule action), and of course the Name of the clip. To analyze these logs, you can use Tools > Analyze logs.

Two different log files are then created every day!

Require Password
OnTheAir Node is controlled using Telnet. In order to prevent any who to control OnTheAir Node, you can set a password to control it. Uncheck this option if you don't need/want any authentication for the selected OnTheAir Node.

- The default password is 1234
- All users will be able to get the List of available Media on the Node and see the playing playlist, even if they are not authenticated. BUT they will not be able to modify the playlist or control the Node as long as they are not authenticated.

Miscallenous - Reset Preferences
You can only use this function when the selected Node is stopped. It is to be used if you suspect that the selected Node has corrupted preferences. It will delete the preferences of the selected Node, so you will loose all your Node Name and port, Media Folders and playback configurations. But you will keep all serial numbers activated. !! Use with care !!

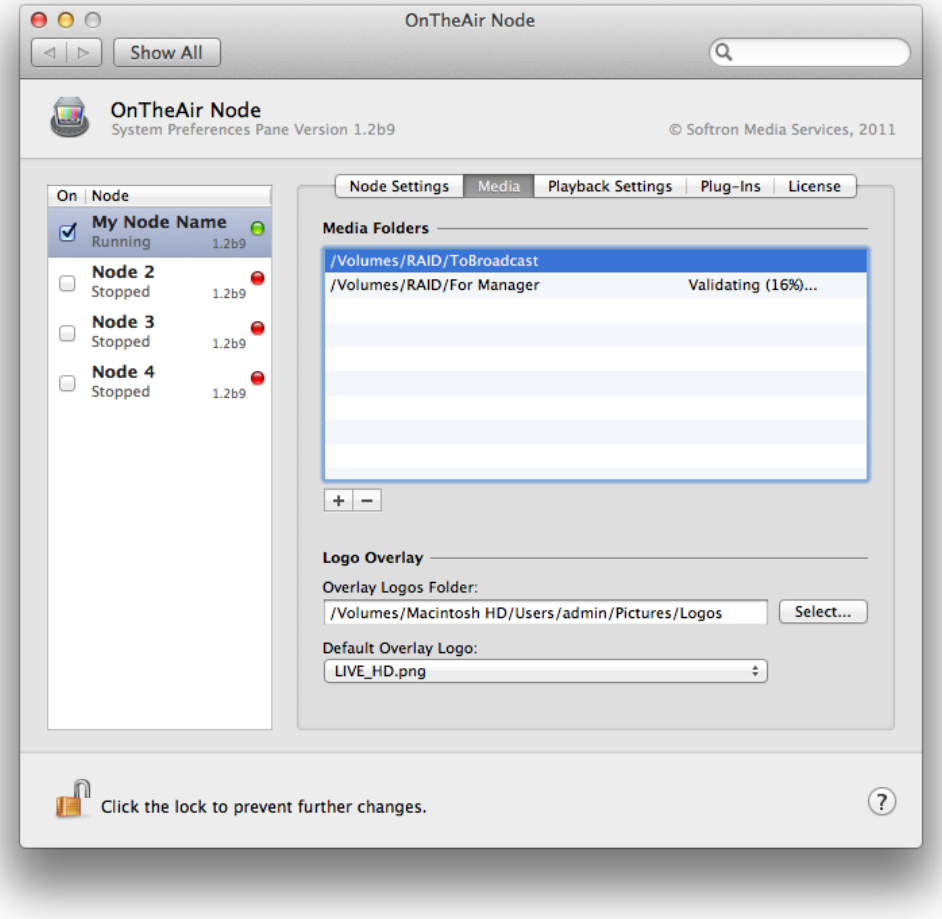
4.6 Media

In the Media Tab, select the Folder(s) where all your video clips and logo png will be located.

When you add a Media Folder to the Media Folder list, immediately, OnTheAir Node starts scanning it to try to find any available video file and validate it. When we validate it we check if:

- the clip is not growing (still transfering or recording)
- the clip is in a supported codec/format (see list of supported codecs before)
- the clip is a media file (we will not list text files)

OnTheAir Node then gives a Unique ID to each of these clips and broadcast it over the Network. Then every user is able to see the list of valid media available for this node. All the “non media” files will not be listed, but clips that are in an unsupported codecs will be listed but flagged as “Invalid”, so the user can’t use it.



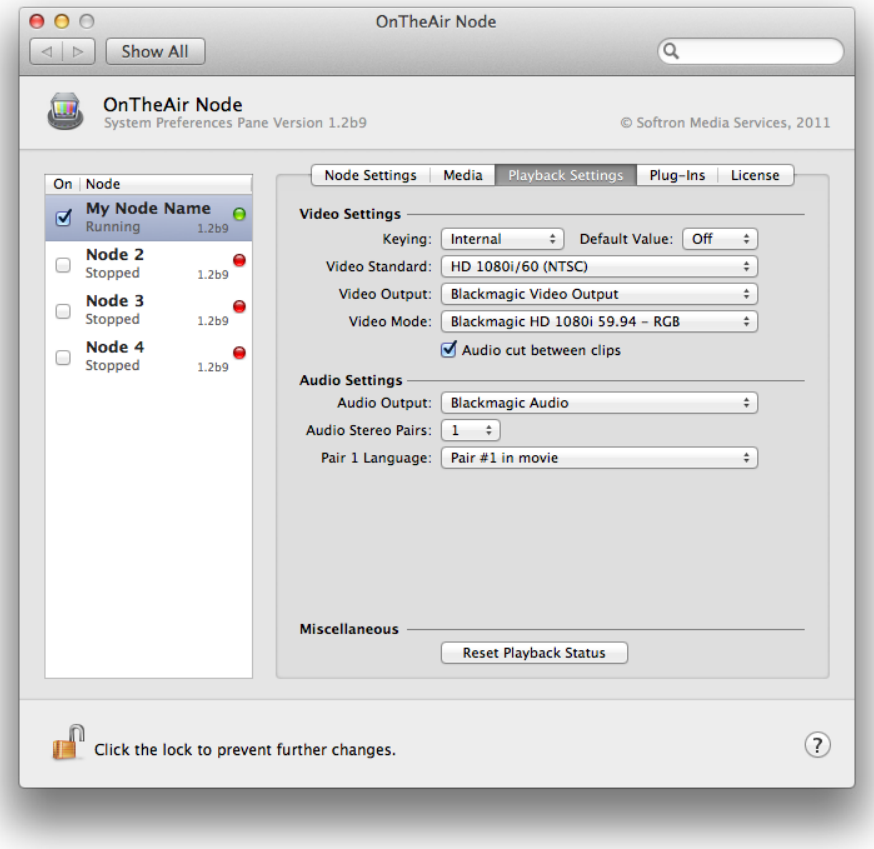
Logo Overlay
Choose there the folder where the logo for this Node will be located and select also which one will be the default Logo.

- The DEMO version of OnTheAir Node only lists 100 media files. And this is random, so it doesn’t necessarily mean it’s the first 100 files of a folder.
- After having added a Logo Folder, you need to stop and restart the Node for the logo attribute to be listed for the clients (OnTheAir Live, OnTheAir Manager or third parties)

BEST PRACTICE FOR Media Folders

- When you add a new Media Folder, there are 2 steps:
  - Enumeration: OnTheAir Node goes through all the files in the folders and list all movie files in it (and only movie files, not .txt files). At the end of the process of enumeration, OnTheAir Node builds it database of clips that can be seen and requested by other clients. This process is quite quick.
  - Validation: once OnTheAir Node has its list of clips, it will start validating them. This process is much slower as we have to scan each file to see if it is valid, get its duration, etc... As long as the file is not validated it will still show as offline, but you will be able to drag and drop it in a playlist if you are using OnTheAir Live or OnTheAir Manager
- Scanning a big Media folder (the number of clips matters more than the size of them) may take some time. Don't try to delete a Media Folder or stop a Node when it is in the process of enumeration or validation a media folder.
- Consider that the best practice is not to select a media folder which hold more then 10.000 items.
- Instead of choosing one big Media Folder, you can select multiple smaller Media Folders.
- Aliases are not supported and will not be listed.
- Modifying the root folder (like adding a clip to the folder you selected in media browser) will force the enumeration of all the clips in all the subfolders. It will not however validate the files that were already present, but only the files that were eventually added. But to gain in performance, avoid modifying a root folder (adding a clip to it, changing the name of a folder or file it holds).
- Renaming a file will force OnTheAir Node to enumerate the whole folder where it is located and all the folders nested in that folder. It will not however validate again the files that were already present.
- Renaming a folder will force OnTheAir Node to enumerate the whole folder where it is located and all the folders nested in that folder. It will not however validate again the files that were already present.
- We have prohibited the selection of the Root directory because the number of Files to scan (also changing files) is too important and may lead to performance issues.
- It is not possible to select one folder that is located in a folder already selected as a Media Folder.
- If a volume, on which a Media Folder is located, unmounts, all the files will be shown as offline in the clients, and OnTheAir Node will have to enumerate and validate again all the clips as if it was newly added.
- If a volume, on which a Media Folder is located, is not present when the computer starts, OnTheAir Node will wait for it for 30 seconds, if it doesn't become available after the 30 seconds, it will start anyway.

▶ 4.7 Playback Settings



Keying
Choose wether you want the Key mode to be External (Fill & Key) or Internal Key (made on the video board over an incoming signal).

Default Value
Choose wether you want the Key mode to be Off or On by default.

- Once you have activated Keying (External or Internal), you will use RGB output instead of YUV, and thus use much more CPU and PCI bandwidth (2 times more). If you are working on a smaller system or doing multichannel, make sure that your computer can handle it.
- You need to have a video board that supports keying for that feature (see the list on the website).

Video Standard
Sets the broadcast standard : SD PAL, SD NTSC, HD 1080i, HD 720p, and the frame rate.

Video Output
Select the card you want to use for output. If you have multiple cards in one mac, this is where they will be listed.

Video Mode
Sets the Video Mode:
- Upper Field (for most codecs)
- Lower Field First for DV clips only (available only with AJA and Matrox cards).

Audio Cut between clips
A movie file almost never has an exact same duration between the Audio and the Video (the Video is a little longer or shorter than the Audio). So at the end of a file if the audio is a little longer, we have two options:

- cut the audio (the last audio samples will then not be played)
- duplicate the last video frame so you play all the audio samples

Audio Output
Sets the output on which the Audio Signal must be sent: you must set this for AJA, Blackmagic, Matrox Audio,or select the Built-In Audio output.

- Select the same audio output as your video output to ensure A/V Sync. If for example you output the video to a Decklink, AJA or Matrox card, and output the audio to the Built-in Output, as the process time between audio and video will be different, you'll experience an A/V sync issue.

Audio Stereo Pairs
OnTheAir Node supports multi-channel audio outputs. For that the QuickTime File must have different channels embedded. You can choose how many pairs you'd like to output.

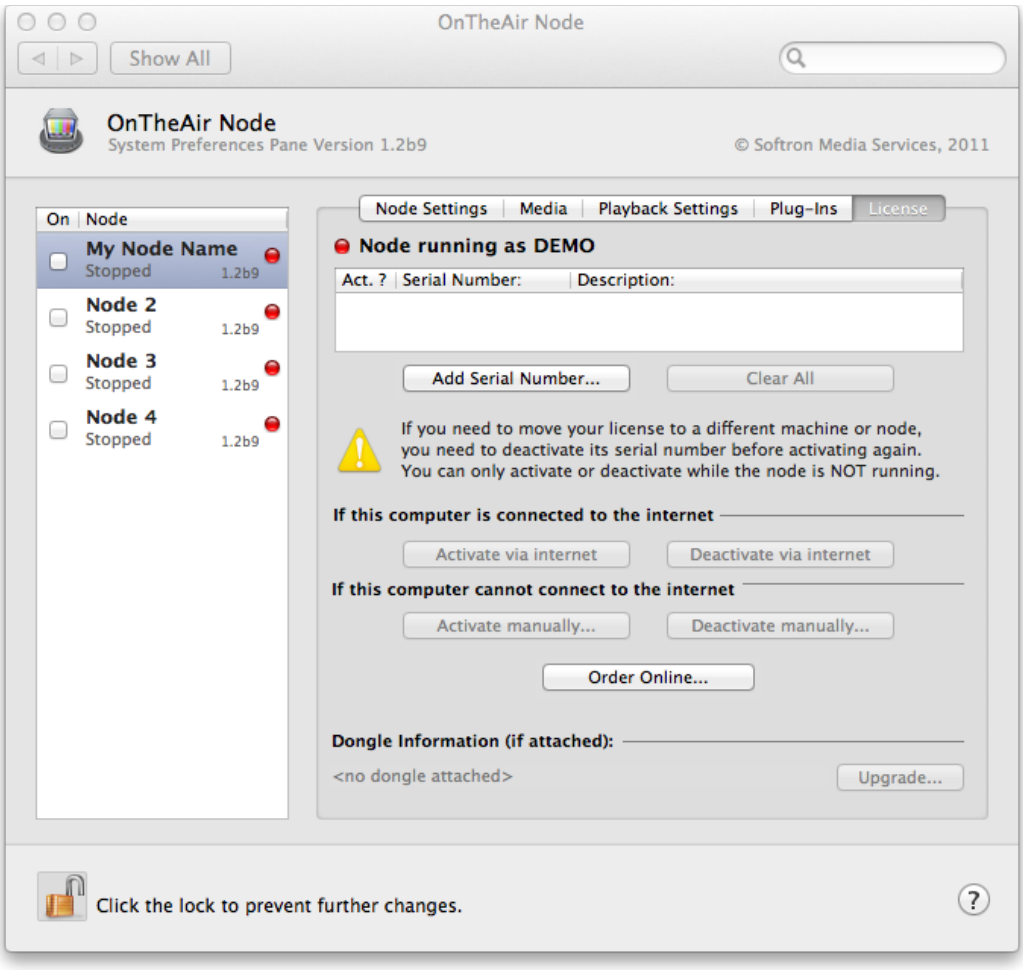
Pair # Language
In QuickTime, you can set the language that corresponds to an audio Track. For example, you can set Audio Track 1 to be English, Audio Track 2 to be French, Audio Track 3 to be German.
Then in OnTheAir Node you will set on which language will be outputted on which Pair. If you set in OnTheAir Node that the German should be outputted on Pair 1, it will be even if in QuickTime the German is on Audio Track 3. If you don't set any language, OnTheAir Node will simply take Audio Track 1 to output it on Pair 1, Audio Track 2 to Pair 2, etc.

- Only use the Languages option if required because it can lead to audio issues if not respected.
- You will need to Stop and Start again the Node to modify the Video and Audio output settings you have just set.

Miscallenous - Reset Playback Status
You can use this button if ever the Node is blocked in a state where you can not control it from a Remote Application. Be aware that this button will stop the playback of the Node and delete the playlist and schedules that were sent to the Node.

4.8 License

This Tab is where you enter the serial numbers for the selected Node (it needs to be stopped in order to be able to activate/deactivate a serial number). At the bottom of the window, you also have an information about the Serial Number of the dongle (if any) that is used by the Node.



QUICK GUIDELINES FOR ACTIVATIONS/DEACTIVATIONS:

To **Activate** a serial number, stop the Node on which you want to activate the license, add your serial number, and click on “Activate via internet” if available. If not click on “Activate manually...”, and then go to a computer that has internet (or no FireWall that blocks the communications on port 6501 or 8080) to go to the activation webpage, then come back with the activation code.

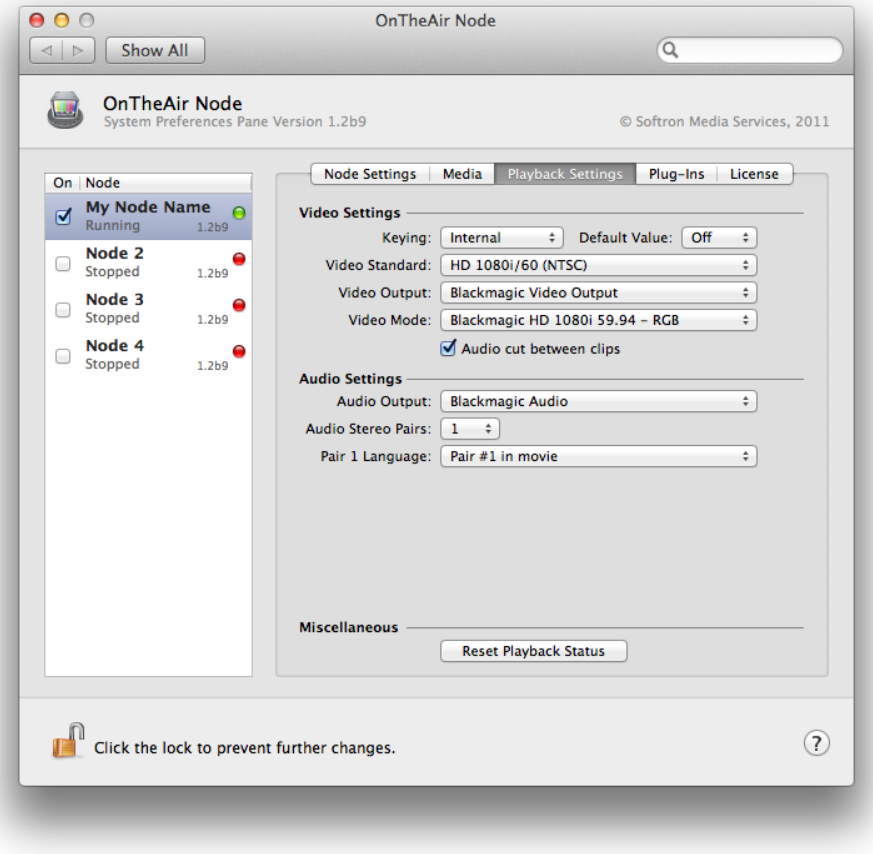
To **Deactivate** a serial number, stop the Node on which you want to activate the license, click on “Deactivate via internet” if available. If not click on “Deactivate manually...”, and then, VERY IMPORTANT, go to a computer that has internet (or no FireWall that blocks the communications on port 6501 or 8080) to go to the deactivation webpage. If you don’t communicate us the deactivation codes, your license will NOT be deactivated.

For more informations, follow the guidelines in the document “Application Licensing Explained” available from the support pages of our website to know how to Activate/deactivate a serial number, or to install a dongle (dongles don’t require activations).

If all the buttons are greyed out, check that :

- the System Preference pane lock at the bottom is unlocked
- the Selected Node is not running: you can only activate or deactivate when OnTheAir Node is not running.

4.9 OnTheAir Node plugins



OnTheAir Node can have plugins. The type of plugins that are currently available are :

- **AJA Kumo** plugin to control the Kumo router from AJA. This is done through Ethernet.
- **Blackmagic Videohub** plugin to control the Videohub router from Blackmagic-Design. This is done through USB or Ethernet.
- **GPI Commander** plugin to send/receive GPI triggers (requires a GPI Commander 2 USB to GPI converter.
- **OnTheAir CG** plugin to control a OnTheAir CG Server application. You will be able to start/stop projects or update variables (for coming next).
- **OnTheAir Switch** plugin to control a Video Router through RS232. Contact us first to know if your Video Router will be supported. We usually can develop a new plugin quite quick, but always check with us first. Requires the OnTheAir Switch application
- **Shell Script** plugin to start shell scripts with variables.

Plugins are installed in the following folder:
/Library/Application Support/Softron/OnTheAir Node/Plugins

Any additional plugin or update should be installed in this folder. This adds a great flexibility as you don't have to reinstall OnTheAir node if you want to add or update a functionality. You just need to add a new plugin to that folder and stop and restart the Node for it to be taken into account.

Once setup and configured, plugins will be available and controlled through the Attributes from the client applications (OnTheAir Live or OnTheAir Manager).

More info on OnTheAir Node Plugins can be found here:
http://softron.zendesk.com/entries/20628861-what-s-a-plugin-for-ontheair-node

Using OnTheAir Node

III

In this third part, we will present quickly how OnTheAir Node can be used and controlled with Softron Clients applications or third party software.

What application can control OnTheAir Node ?

5

5.1 Softron Client Applications

Softron Media Services have developed a few client applications to take control of OnTheAir Node:

- OnTheAir Live : is a free application that can be used to control any number of OnTheAir Node in Live operations where you will want to have a playlist type of control with cue mode, A/B Roll, etc...
- OnTheAir Manager (with or without OnTheAir Server): is used to control any number of OnTheAir Node in 24/7 broadcast with a schedule and a Calendar type of user interface.
- OnTheAir Node Remote : is the iPad application that enables to control (with some limitations) any number of OnTheAir Node. It has the same kind of user interface as OnTheAir Live with playlists and is to be used also in Live environments (not for 24/7 scheduling). It is available from the AppStore.

Refer to the manuals of these applications to know how to use them with OnTheAir Node.

5.2 Third parties

Any third party application can also take control of OnTheAir Node using the telnet protocol. The telnet protocol is an open protocol that is very easy to implement and instructions on how to implement it is available upon request. A list of third party application (Traffic, Media Asset Management, ...) compatible with OnTheAir Node is also available upon request.

5.3 Terminal

For advanced users, you can also take control of OnTheAir Node using the “Terminal” application.

For that, simply open Terminal and type (example here to control Node 1 (uses by default port 3001) of a computer which has the IP address 192.168.0.1:

telnet 192.168.0.1 3001

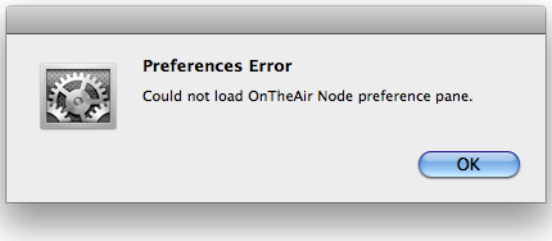
Note that Node 2 will use port 3002, Node 3, 3003, etc...

You should then be connected to the server. Then type “help” and hit the carriage return key to get the list of command you can request to OnTheAir Node.

Some commands do not need to be authenticated to request them, for others you will need to be authenticated. To authenticate, type unlock 1234 and then the carriage return key. Where 1234 is the default password. If you modified the default password, you should type the password you set.

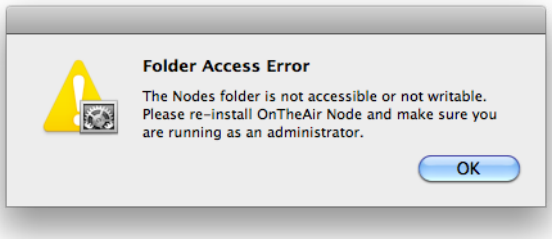
To close the connection, simply type “exit” and then the carriage return key.

PROBLEM:
The OnTheAir Node System Preference pane doesn't start

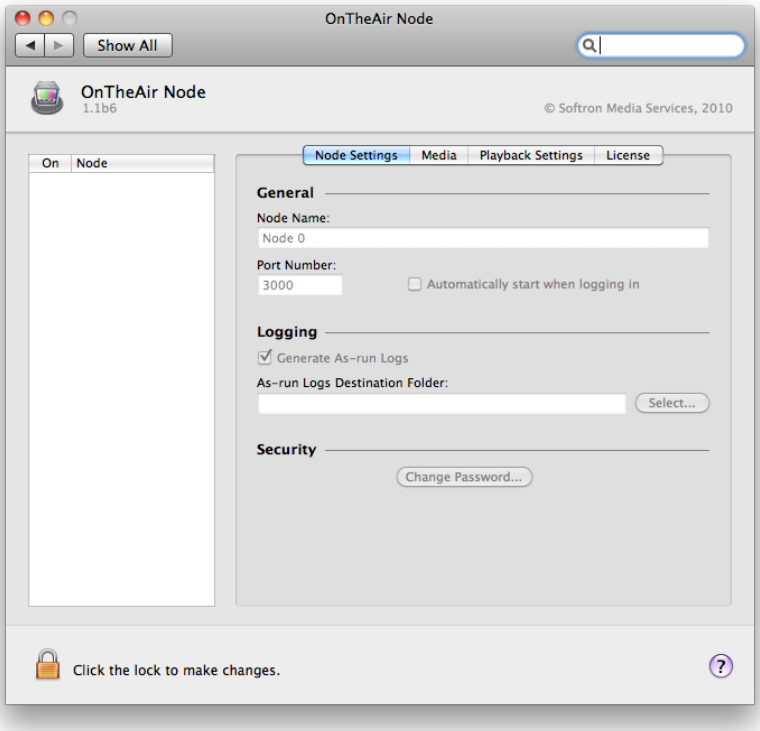


SOLUTION:
- maybe the OnTheAir Node application has crashed. You will need to Force Quit it (check the How to force quit a OnTheAir Node application troubleshoot).

PROBLEM:
When starting OnTheAir Node System Preference Pane, I have this warning:


Folder Access Error
The Nodes folder is not accessible or not writable.
Please re-install OnTheAir Node and make sure you are running as an administrator.
OK

And then the OnTheAir Node list is empty:



SOLUTION:

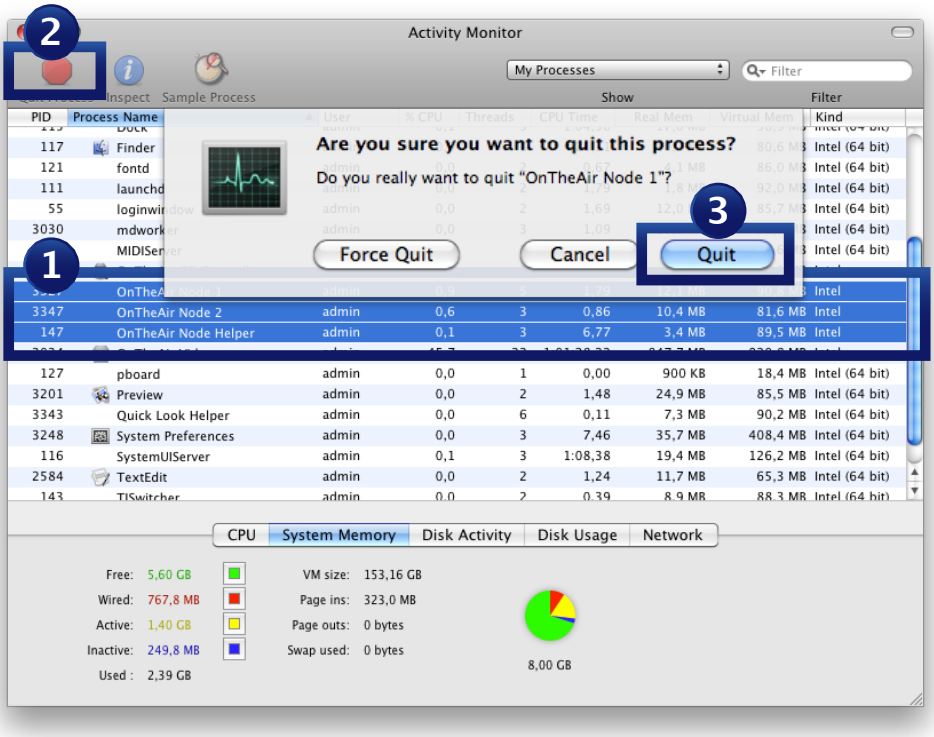
- This means that you are probably trying to start OnTheAir node from a non admin user. Non admin users have limited read/write access to some folders where OnTheAir Node will need to write some config files. You can run OnTheAir Node from a non admin user, but only if you make sure to give it the read and write access to the following folder and all nested folders:
  /Library/Application Support/Softron/OnTheAir Node.

PROBLEM

How to Force Quit OnTheAir Node? OnTheAir Node application seems to be unresponsive but I can not see it in the Force Quit dialog

SOLUTION

OnTheAir Node is a “hidden” application which can not be seen by the regular “Force Quit” dialog. To Force Quit it, you need to open the Application “Activity Monitor” (located in Applications/Utilities/).



Then:

1. Click on the OnTheAir Node 1, OnTheAir Node 2, OnTheAir Node 3 or OnTheAir Node 4 application
2. Click on the “Quit Process” button in the top Toolbar.
3. Confirm you want to quit the process

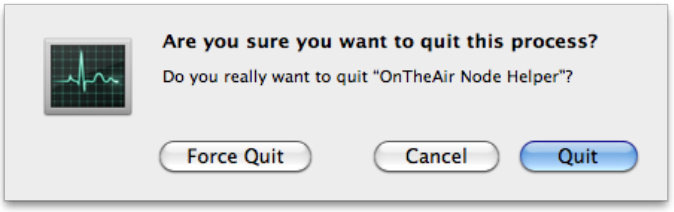
Note that the OnTheAir Node application will automatically restart if you enabled the option “Automatically start when logging in”. If it is still unresponsive afer having automatically restarted, you may need to clear its status:

1. Click on the OnTheAir Node Helper Application (that’s the one who will restart automatically your Node)
2. Click on the “Quit Process” button in the top Toolbar, and confirm.
3. Click on the OnTheAir Node 1, OnTheAir Node 2, OnTheAir Node 3 or OnTheAir Node 4 application
4. Click on the “Quit Process” button in the top Toolbar and confirm
5. Delete those files:
   /Library/Application Support/Softron/OnTheAir Node/Node 1/Playlist.plist
   /Library/Application Support/Softron/OnTheAir Node/Node 1/Schedule.plist

---

PROBLEM
Every time I force quit OnTheAir Node using the Activity Monitor application it automatically restarts, but I don't want it to restart

SOLUTION
OnTheAir Node Helper is the application that restarts automatically the Nodes when they crash. If you do not want a Node to automatically restart, you will have to Force Quit first the OnTheAir Node Helper application.



PROBLEM
Every time OnTheAir Node starts, it tries to start some clips automatically

SOLUTION
Probably the Node has some playlist or schedule associated. You can click on reset playback status in the Playback menu. Be aware that this will delete all playlists and schedules associated and then will not automatically start the clips it should. You will then need to resent the playlists or schedule from OnTheAir Live or OnTheAir Manager. You can also manually delete the files:
/Library/Application Support/Softron/OnTheAir Node/Node 1/Playlist
/Library/Application Support/Softron/OnTheAir Node/Node 1/Schedule

---

PROBLEM
I can not activate or deactivate the serial numbers

SOLUTIONS
- OnTheAir Node needs to be stopped in order to be able to activate/deactivate serial numbers.
- Check if you communicated us the deactivation codes if you previously did a manual deactivation.
- Check that the serial number has not expired if working with temporary serial numbers.